



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/696,702	10/30/2003	Hiroyuki Hasegawa	061063-0306592	7556

909 7590 03/28/2005

PILLSBURY WINTHROP, LLP  
P.O. BOX 10500  
MCLEAN, VA 22102

EXAMINER

STEVENSON, ANDRE C

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 03/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/696,702

Applicant(s)

HASEGAWA ET AL.

Examiner

Andre' C. Stevenson

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on December 9, 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
  - 2) ☒ Certified copies of the priority documents have been received in Application No. 10/254,601.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/30/03, 11/20/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: See Continuation Sheet.

## ***Detailed Action***

### ***Information Disclosure Statement***

The information disclosure statements (IDS) submitted on 12/09/03, 11/20/03, 10/30/03, were filed before the mailing date of the first action on the merits. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 10254601, filed on September 26, 2002.

### ***Claim Rejections - 35 USC § 112***

Claim #7 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The omitted elements are: Claim #7, line 8, states, "inserting and ejecting said substrate by means of said substrate carrying system". It is unclear into where, or from where, the inserting and ejecting process occurs. Clarification is requested.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over McAndrew et al. (U.S. Pat. No.6,154,284 , Patented 11/28/00, Filed 03/30/99), in view of Ishihara et al. (U.S. Pat. No.5,953,591 , Patented 09/14/99, Filed 12/27/96).

McAndrew substantially shows, in figures 1-5 and corresponding text, in a similar method, where a chamber monitoring system and a semiconductor processing system, which includes an absorption spectroscopy, are used to control moisture conditions, with respect to **claim #7**, a semiconductor manufacturing method which performs reactive gas processing (**column 5, lines 23-37**), wherein, when a substrate carrying system inserts a substrate from an airtight space in the substrate carrying system into a reaction chamber, and when said substrate is ejected from said reaction chamber to said airtight space (**column 3, lines 57-63 column 11, lines 15-32**), reactive gas is fed into said reaction chamber and reacts therein, the method comprising (**column 10, lines 23-31**): and a gas processing step of performing said reactive gas processing while measuring the moisture content in said reaction chamber by means of a second moisture measuring device, which is connected to said reaction chamber, after said substrate carrying step (**column 2, lines 63-67; column 3, lines 1-13**). *Pertaining to claim #9*, McAndrew also shows a semiconductor manufacturing method where at least said second default value

Art Unit: 2812

being lower than 1 ppm (**column 8, lines 66,67; column 9, lines 1-12**). *Pertaining to claim #10*, McAndrew shows, a semiconductor manufacturing method, at least one of said first moisture measuring device and said second moisture measuring device comprising a laser moisture measuring device which radiates laser light into a tubular cell main body, connected to said airtight space and said reaction chamber, and measures an absorption spectrum of transmitted laser light (**column 6, lines 22-43**). The Examiner notes that McAndrew fails to show explicitly a "tubular shaped cell ", as mentioned in the claim limitation. However, neither the specification nor the recited claim, teaches why, or if, the tubular shape is necessary for the inventive method. Thus, the Examiner takes the position that the tubular shape is a matter of choice, and that the square or rectangular cell used by McAndrew, is equivalent.

McAndrew fails to show, with respect to **claim #7**, a substrate carrying step of measuring the moisture content in said airtight space by means of a first moisture measuring device which is connected to said airtight space, and thereafter, inserting and ejecting said substrate by means of said substrate carrying system. Also, McAndrew fails to show, with respect to claim #8, a semiconductor manufacturing method, where said substrate carrying step comprising inserting said substrate from said airtight space to said reaction chamber or ejecting said substrate from said reaction chamber to said airtight space, after it has been confirmed that the moisture content in said airtight space is lower than a first default value; and said gas processing step being a step in which said reactive gas processing is commenced after it has been confirmed that the moisture content in said reaction chamber is lower than a second default value.

Art Unit: 2812

Ishihara teaches, in a similar method, **pertaining to claim # 7**, a substrate carrying step of measuring the moisture content in said airtight space by means of a first moisture measuring device which is connected to said airtight space, and thereafter, inserting and ejecting said substrate by means of said substrate carrying system (**column 4, lines 9-16; column 16, lines 13-19; column 18, lines 26-34 and lines 39-44; column 13, lines 25-37**). *Pertaining to claim #8*, Ishihara also teaches, a semiconductor manufacturing method, where said substrate carrying step comprising inserting said substrate from said airtight space to said reaction chamber or ejecting said substrate from said reaction chamber to said airtight space, after it has been confirmed that the moisture content in said airtight space is lower than a first default value; and said gas processing step being a step in which said reactive gas processing is commenced after it has been confirmed that the moisture content in said reaction chamber is lower than a second default value (**column 13, lines 25-37; column 14, lines 24-30; column 16, lines 13-19 and lines 44-49; column 18, lines 26-34 and lines 39-44**).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a substrate carrying step of measuring the moisture content in said airtight space, by means of a first moisture measuring device, which is connected to said airtight space, and thereafter, inserting and ejecting said substrate by means of said substrate carrying system, into the method of McAndrew, as taught by Ishihara, with the motivation that the step would prevent contaminated structures from being placed in the chamber and spreading the contamination throughout the system.

Art Unit: 2812

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a semiconductor manufacturing method, where said substrate carrying step, comprising of inserting said substrate from said airtight space to said reaction chamber, or ejecting said substrate from said reaction chamber to said airtight space, after it has been confirmed that the moisture content in said airtight space is lower than a first default value; and said gas processing step being a step in which said reactive gas processing is commenced after it has been confirmed that the moisture content in said reaction chamber is lower than a second default value, into the method of McAndrew, as taught by Ishihara, with the motivation that the step would prevent contaminated structures from being placed in the chamber and spreading the contamination throughout the system.

### Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure; McAndrew et al. (U.S. Pat. No. 5,963,336), Hockersmith et al. (U.S. Pat. No. 4,661,196) Bright et al. (U.S. Pat. No. 6,312,525).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andre' Stevenson whose telephone number is (571) 272 1683. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt, can be reached on (571) 272 1873. The fax phone number for the organization where this application or proceeding is assigned is (703) 308 7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956. Also, the proceeding numbers can be used to fax information through the Right Fax system;

**(703) 872-9306**

Andre' Stevenson  
03/03/05

  
**MICHAEL LEBENTRITT**  
**SUPERVISORY PATENT EXAMINER**

Continuation of Attachment(s) 6). Other: Information Disclosure Statement Filed; 12/09/03.